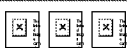


**From:** Separation Science <noreply@sepscience.com>  
**Sent:** Monday, February 25, 2013 1:12 PM  
**To:** Hanchett, James (DPH)  
**Subject:** Read the latest Wyatt application notes



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Below is a selection of application notes from Wyatt Technology. To request full PDFs for any or all of these click on the links below:



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#### **Hyaluronic Acid (Polysaccharides)**

Hyaluronic Acid (HA) is an ubiquitous, very high molar mass polysaccharide that has been of particular importance in ophthalmic surgery. HA acts as a molecular "shock-absorber" and stabilizer for cells and its visco-elastic properties are valuable for separating tissue and maintaining shape. It is a critical component in tissue lubrication, and is believed to play a leading role in wound repair. Finally, HA's property of non-pyrogenicity makes it an ideal sheath for implants, whose presence might cause the body to suffer an immune response.

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#### **Antibody Drug Conjugate (ADC) Analysis**

There has been a significant resurgence in the development of antibody-drug conjugates (ADC) as target-directed therapeutic agents for cancer treatment. Among the factors critical to effective ADC design is the Drug Antibody Ratio (DAR). The DAR describes the degree of drug addition which directly impacts both potency and potential toxicity of the therapeutic, and can have significant effects on properties such as stability and aggregation. Determination of DAR is, therefore, of critical importance in the development of novel ADC therapeutics.

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#### **Molecular Weight Determination of LMWH SEC/MALS vs. SEC/UV-RI**

Low-molecular-weight heparins (LMWHs) are obtained by fractionation or depolymerization of natural heparins. They are defined as having a mass-average molecular weight of less than 8000 and for which at least 60% of the total weight has a molecular mass less than 8000.

Size-exclusion chromatography (SEC) has been the most common way of measuring the molecular weight and molecular weight distributions of LMWHs by using the two most common detection technologies: ultraviolet (UV) coupled with refractive index (RI) detection.

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#### **Characterization of Au Nanoparticles in a Complex Biological Matrix**

There has been a remarkable surge in recent years in the use of nanoparticles in a variety of consumer products. Nowadays, they can be found in samples as diverse as body creams, facial preparations, lotions, and coatings. Oftentimes, nanoparticles containing metals like silver, gold or titanium are used in medical and pharmaceutical applications. Of course, scientists must address the possible impacts which might result from the use of and exposure to these agents. This is why the reliable and comprehensive characterization of nanoparticles is of prime importance.

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#### **Transient Protein Self-Association Determined by SEC-MALS**

Domain antibodies (dAbs) are the smallest functional binding units of antibodies, corresponding to the variable regions of either the heavy (VH) or light (VL) chains of human antibodies. Different dAbs can show different degrees of self association which drives the need for a cheap, quick—yet robust technique—to study self-association behaviour in Drug Discovery. This study outlines the use of SEC-MALS to determine self-association, and validates the work by comparison with Analytical Ultracentrifugation (AUC).

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#### **Polyvalent Pneumococcal Polysaccharide Vaccine (PNEUMOVAX®23)**

An approach was developed to align release and end-expiry specifications for molecular size for the quality control of Merck's polyvalent pneumococcal polysaccharide vaccine (PNEUMOVAX®23). Each of the 23 polysaccharide components of the vaccine was separately subjected to ultrasonication to produce a series of preparations of decreasing weight-average molar mass ( $M_w$ ).

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#### **MALS + AFFF for Colloidal Drug Carrier Systems**

Although gelatin provides important advantages, like its proteinaceous structure and its biodegradability, there is one major drawback of gelatin that disturbs the manufacturing process. Related to the extraction of gelatin from collagen originating from different animal sources, its molecular weight distribution is very heterogeneous. Generating gelatin nanoparticles via desolvation is, therefore, not possible. To overcome this problem a two-step desolvation technique was proposed and successfully realised.

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